

## REMARKS

Claims 1-14 are pending in this application. Claims 1 and 10 stand rejected under 35 USC 102(a) as anticipated by, or in the alternative, under 35 USC 103(a) as obvious over Stecura, Jacobsen, Watanabe '138, Pitts, or Kondo '330. Claims 1-14 stand rejected under 35 USC 102(a) as anticipated by, or in the alternative, under 35 USC 103(a) as obvious over Maloney '200B1, Worrell '214, Mase '394, Rangaswamy '270, Strangman '537B1, or Fehrenbacher '113. Claims 1-14 stand rejected under 35 USC 112 because the independent claims do not include the limitation of at least 30% stabilizer and because they claim a coating without a substrate.

The applicants have amended each of the claims to include the limitation of at least 30 wt. % of the respective stabilizer, per the Examiner's suggestion. The applicants maintain the position that such a limitation is not required by 35 USC 112, since a person skilled in the art would know how to measure values of ionic conductivity and linear shrinkage without undue experimentation. Furthermore, FIG. 2 of the disclosure does provide an example of a composition having a peak ionic conductivity value of below 30 wt. % of stabilizer. However, in order to facilitate the prosecution of this application without further delay, the applicants have voluntarily amended the claims to include the 30 wt. % limitations, since such claims read on the commercially important compositions of interest to the assignee of the invention. These amendments overcome the rejections of the claims under 35 USC 112 as well as the rejection of claims 1 and 10 under 35 USC 102(a) as anticipated by, or in the alternative, under 35 USC 103(a) as obvious over Stecura, Jacobsen, Watanabe '138, Pitts, or Kondo '330.

With regard to the rejection of claims 1-14 in view of Maloney 200 B1, the applicants note that Maloney describes a gadolinia-zirconia oxide. However, claims 1-9 of the present invention are directed to yttria stabilized zirconia, and claims 10-14 of the present invention are directed to gadolinia stabilized hafnia. The teachings of Maloney related to gadolinia-zirconia provide no teaching

relevant to the claimed compositions. Maloney does mention yttria in column 10, lines 17-19, where he says that either the zirconia or the gadolinia may be partially substituted with yttria. However, Maloney actually teaches away from the present claims by stating that the yttria may be used "up to about 25 mol. % and preferably only up to about 20 mol. %." Thus, Maloney fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

Independent claims 1, 5, 6 and 10 have been amended to change the connecting phrase to "consisting essentially of." With regard to the rejection of the claims in view of Worrell, the applicants note that the Worrell reference is directed to a conducting body, not a thermal barrier coating composition. In addition to zirconium dioxide and a stabilizer, Worrell teaches the addition of a third constituent, e.g. an oxide of a metal of Group V<sub>a</sub> and VI<sub>a</sub>, that is added to increase electron conductivity. The present invention is not concerned with electron conductivity, but rather ionic conductivity, which is well known in the art to be a different physical phenomenon. Thus, the addition of a third active constituent by Worrell to increase electron conductivity provides no teaching or suggestion for the claimed thermal barrier coating compositions. Thus, Worrell fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

With regard to the rejection of the claims in view of Mase, the applicants note that Mase discloses a three constituent composition specifically tailored to have high electrical resistance for use as an electrode. The third constituent added to the composition of Mase will increase sintering, thereby teaching away from the claimed compositions. The deletion of the third constituent in Mase would destroy the functionality of the Mase composition for its intended purpose. Thus, Mase fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

With regard to the rejection of the claims in view of Rangaswamy, the applicants note that Rangaswamy describes a composition including zirconium oxide, cerium oxide and yttrium oxide. The present claims do not include cerium

oxide. Thus, Rangaswamy fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

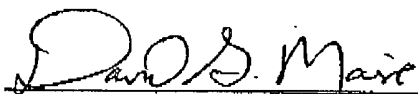
With regard to the rejection of the claims in view of Strangman, the applicants note that Strangman teaches the use of only up to 25 wt. % yttria. Thus, Strangman fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

With regard to the rejection of the claims in view of Fehrenbacher, the applicants note that Fehrenbacher describes a composition containing a combination of several stabilizers. There is no teaching or suggestion by Fehrenbacher as to the effect of this combination of stabilizers on the ionic conductivity or sintering performance of the composition. The applicants have also incorporated the Examiner's suggestion to include gadolinia into independent claim 10. Thus, Fehrenbacher fails to support the rejection of any of the present claims under either 35 USC 102 or 35 USC 103.

Claims 2, 7, 11 and 12 have been cancelled. The preamble of each of the claims has been amended to claim a coating composition.

Reconsideration of the application in light of the above Remarks and allowance of claims 1, 3-6, 8-10, 13 and 14 are respectfully requested.

Respectfully submitted,



David G. Maire (Reg. No. 34,865)

Beusse Brownlee Wolter Mora & Maire, P.A.  
390 North Orange Ave., Suite 2500  
Orlando, FL 32801  
Telephone: 407-926-7704